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EXAMINER

AWAI, ALEXANDRA F

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/804,520	Applicant(s) EDWARDS ET AL.	
	Examiner Alexandra Awai	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 89 is/are pending in the application.
- 4a) Of the above claim(s) 9, 11 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicants' arguments filed 5/19/2006 have been fully considered but they are not persuasive with regard to the prior art rejections of the previous Office Action. Those rejections or objections that have been overcome by amendment are omitted from the present Office Action and are to be considered withdrawn. In view of admissions presented in the Remarks, the objections and rejections under 35 U.S.C. 112, first paragraph, will be reformulated to more clearly set forth Examiner's position.

With regard to the enablement discussion as a whole, Examiner's conclusions were based on the idea that Applicants are currently claiming an allegedly new apparatus. Although Applicants "paraphrased" Examiner in stating that the invention comprises a *combination* of optimized-parameter plasma, magnetic field, current, electric field *and* hardware in which prior art components are employed, Applicant has mischaracterized the relevant issue as well as Examiner's arguments. The *subject matter* of the presently disclosed invention involves the listed features, however, because the *claimed invention* is an apparatus, *only* the hardware recited in the present claims is relevant to patentability. This is *not* because the hardware is hard, while the plasma is not. That is, those limitations regarding the plasma are not irrelevant to patentability because plasma is not "durable" or "real". Indeed, the material worked upon in the cited case law comprised concrete, and still remained immaterial to the patentability of the relevant case, although concrete is both "durable" and "real". Similarly, the plasma of the current apparatus is a *material* worked upon in part because it *is* a form of (real) matter. Although

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Applicants are *attempting* to actively claim the plasma, magnetic field, current and electric field in order to cast those features as structures of the apparatus, *they are not*.

Applicants admit that the invention is practiced with an existing tokamak, well-known to those skilled in the art (Remarks, p. 8) and that some prior art confinement field generators may in fact be capable of implementing some of the confinement parameters (Remarks, p. 12). These statements suggest that Applicants have not necessarily invented a new apparatus, but rather may have invented a *new way of using* a prior art device. Applicants have therefore persuasively argued that they are not entitled to an apparatus patent, but may be entitled to a method patent. Arguing that the apparatus is inventive even when known devices may be used in the same way is as unsupportable as the contention that a Sub-Zero® refrigerator used as a gym locker may be protected by an apparatus patent. Note that a method limitation or recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is *capable of performing the intended use*, then it meets the claim. See MPEP § 2111-2115, particularly MPEP § 2114, which states:

“A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim.” *Ex parte Masham*, 2 USPQ2d 1647.

“Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function.” *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531.

“[A]pparatus claims cover what a device is, not what a device does.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.* 15 USPQ2d 1525, 1528.

Applicant has argued that the plasma itself must be included in the limitations of claim 1 in order to satisfy the utility requirement, as the invention would be inoperable without it.

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However, this is akin to arguing that a refrigerator that is receiving no electricity is lacking in utility, or that an automobile with an empty gas tank is lacking in utility, or that an accelerator not producing a stream of particles is lacking in utility. 35 U.S.C. 101 merely states:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claimed apparatus is clearly “useful” even when it is not actually in the functioning state, although not for Applicants’ *intended use*, which appears to be the only possibly inventive feature of the disclosed invention in view of Applicants’ admissions. Indeed, an apparatus patent is not intended to protect a disclosed device only in the operating state, thereby enabling others to manufacture and sell it, as long as it is not turned on. Novel operating states achieved using prior art devices are only eligible to be protected by method patents.

In consideration of these factors, Examiner previously argued that the written disclosure was not enabling because it was assumed that Applicant *was* claiming a novel apparatus without clearly pointing out the novel aspect that distinguished it from devices in the prior art. However, the Remarks clearly state that “the present invention, comprising applicant and adjustment of magnetic fields, currents and other physical components of the apparatus that have not yet been carried out in the prior art, *can be carried out using known components*” (p. 8, emphasis added). The Remarks also contain several inscrutable statements such as: “The novelty does not lie with the hardware alone” (p. 8), “Applicants base the novelty of the invention on the combination of optimized-parameter plasma, magnetic field, current, electric field, as well as some hardware” (p. 9), and “The claimed novelty does not lie with the hardware alone” (p. 12). These statements suggest that some (heretofore undefined) aspect of the hardware (e.g., the confinement field generators of Figs. 16 and 17) may constitute a contribution over the prior art. However,

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Applicants have also stated that they have practiced the invention with an apparatus invented by others, and that it is not necessary to set forth an exhaustive description of the hardware particulars. Applicants' arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which they think the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections. If there is a novel difference between the apparatus used to practice the disclosed invention and those in the prior art, Applicants are required to clearly point it out. Otherwise, Examiner is forced to conclude that the presently claimed apparatus is fully enabled *because it is not novel*. Accordingly, Applicants' arguments with regard to the rejections under 35 U.S.C. 102 are completely unpersuasive.

Claim 1 is clearly rejected as indefinite (p. 5 of the previous Office Action), despite the obvious typographical error stating that claims 2-8, 10 and 13-17 were rejected. Claims 10, 13 and 15-17 were rejected as being dependent on indefinite claim 1. With regard to Applicants' argument that claims 2-8 are analogous to the claims at issue in *Orthokinetics, Inc. v. Safety Travel Chairs Inc.*, Examiner respectfully disagrees. The aspect of a pediatric wheelchair part that is "dimensioned to be insertable ..." is clearly a cross-section of the part. However, the present claims recite "a dimension" of the of the electron confinement volume, without giving any indication of what this dimension characterizes. Similarly, while "the space between the doorframe of an automobile and one of the seats" is a variable that is relatively well defined by practical consideration, because Applicants' claims are unduly vague with regard to the actual structure of the plasma containment, the variables "electron skin depth" and "average number density of the electrons" additionally serve to render the claims indefinite. If the claims were

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definite in this regard, they would encompass embodiments whose scope is not enabled by the present disclosure. With regard to the beta values, setting forth the factors upon which the variables depend is not equivalent to particularly pointing out *how* the variables depend upon the factors. The term “unknowns” on page 6 of the previous Office Action is intended to mean “variables”.

Response to Amendment

2. The declarations under 37 CFR 1.132 filed 5/19/2006 are insufficient to overcome the rejections of the claims based upon insufficiency of the disclosure and novelty as set forth in the last Office action because they essentially support the contention that the allegedly inventive aspect of the disclosed invention is *not* the apparatus. Exhibit A states that “the Bass patent device does not contemplate a charge separation, with attendant electric fields, as exists in the Edwards-Held invention” and otherwise characterizes the invention as including the plasma and magnetic field configuration. These statements evidence a conflation of the disclosed subject matter and the claimed invention. The “Bass patent device” is not capable of “contemplating” anything, and therefore this statement is taken to mean that the disclosure of the Bass patent does not explicitly teach the features of the plasma claimed in the present case. The rejections of the claims under 35 U.S.C. 102 are not dependent on any such teaching. Therefore, those rejections are maintained and incorporated herein by reference where applicable to the currently amended claims. Exhibit B clearly states that Applicants “are currently using a tokamak acquired from a Canadian Facility in [their] ongoing research relating to the present invention.” Exhibit C contains no substantive arguments with regard to the issues in contention.

Status of the Claims

3. Claims 1-8, 10, 13 and 14 have been amended; claims 9, 11 and 12 have been withdrawn; claims 15-88 have been cancelled; and new claim 89 has been added. Claims 1-8, 10, 13-15 and 89 have been examined.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-8, 10, 13-15 and 89 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As argued in section 1 of this Office Action, those recitations directed to the plasma are method limitations or recitations of intended use. Accordingly, claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are those that are taken to configure and operate the structural elements of the two-mode plasma containment apparatus such that the allegedly novel charge separation may take place. Claims 2-8 are indefinite for reciting “a dimension” defined by a range of electron skin depths, without particularly pointing out what “a dimension” encompasses. Claim 14 is indefinite because it does not distinctly claim how the first and second beta values depend on the various factors.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1-8, 10, 13-15 and 89 are rejected under 35 U.S.C. 102(b) as being anticipated by Bass et al. largely as set forth in the Office Action dated 12/16/2006.

To the degree that the claims particularly point out the subject matter of the current invention they are anticipated by Bass et al., which disclose the relevant features as set forth in section 11 of the previous Office Action. Claim 1 has been amended to recite a plasma containment housing, and Bass et al. disclose a toroidal chamber (11) that reads on this feature.

Although Applicant contends that the claimed dimensions – particularly with regard to claims 7 and 8 – “enable the inventive apparatus to perform differently from prior art devices.” This assertion is equivalent to stating that a new set of parameters determines that a device operate differently from when an old set of parameters were inputted. Establishing new parameters for a prior art device to operate under is not grounds for patentability. The “inventive apparatus” of the present application may be embodied by prior art devices, such as that disclosed in Bass et al., or the tokamak acquired from a Canadian facility mentioned in Exhibit B. Applicant has failed to establish what aspect of the presently claimed apparatus constitutes a contribution over the prior art, and the original disclosure does not include any mention of such an aspect. As argued in the previous Office Action and section 1 of this Office Action, those

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limitations directed to the plasma, magnetic field and electrostatic field are not material to patentability. See MPEP § 2111.04 and 2115, which states:

“Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (BD. App. 1969)

“Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 996, 26 USPQ 69 (CCPA 1935)

These conclusions are relevant to claims 1-8, 10, 13-15 and 89, as essentially all limitations are drawn to the behavior and size of the plasma, rather than the plasma containment apparatus.

With regard to claims 2-8, given that the electron skin depth is a variable dependent upon electron densities and frequencies associated with the plasma, the electron confinement volume taught by Bass et al., which is at least part of the plasma confinement volume, reads upon the current claims. That is, given an electron skin depth of 2 cm, for example, there exists “a dimension” of the confinement volume that can be defined as 200 cm or 2.4 cm. Furthermore, the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device – for instance, relating to confinement volume – and a device having the claimed relative dimensions would not perform differently than the prior art device (i.e., that it may be used for the same purpose on a smaller scale), the claimed device was not patentably distinct from the prior art device. See *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984)

Regarding claims 10 and 13, the limitations recited therein are entirely conventional, as evidenced by the lack of explanation of the physics involved in toroidal confinement and screw-

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pinch confinement within the current specification. Although the Bass et al. reference is drawn to toroidal confinement technology, screw-pinch confinement and the beta factor (as in a High-Beta Stellarator) are also discussed in the context of established knowledge (as denoted above by column and line number), so the reference teaches each of the claimed features. Furthermore, it is understood by those skilled in the art of magnetic plasma confinement that the operating parameters of a plasma *must* include factors relating to particle density, plasma temperature and magnetic field strength (see col. 9, Nomenclature table). Even if the parameters set forth in claims 14 and 89 were novel, they would be immaterial to patentability of the apparatus.

With regard to claim 15, it is inherent to any of the magnetic confinement devices disclosed by Bass et al. that the magnetic fields developed may lead to a greater current/bulk motion/flow of electrons. That is, any plasma produced in the device disclosed by Bass et al. may inherently be “subjected” the restrictions that are claimed. As to limitations which are considered to be inherent in a reference, note the case law of *In re Ludtke*, 169 USPQ 563, *In re Swinehart*, 168 USPQ 226, *In re Fitzgerald*, 205 USPQ 594, *In re Best et al.*, 189 USPQ, and *In re Brown*, 173 USPQ 685, 688. This inherency is demonstrated by Applicants’ own admissions stating that prior art systems are capable of practicing the invention.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexandra Awai whose telephone number is (571) 272-3079.

The examiner can normally be reached on 9:30-6:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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July 6, 2006



JACK KEITH
SUPERVISORY PATENT EXAMINER